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SUBJECT: ALSAFECOM 003/01, PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR  
LIQUID OXYGEN (LOX) SERVICING

1. THIS IS A RETRANSMISSION OF ALSAFECOM 002/99 ORIGINALLY ISSUED IN  
MARCH 1999. THE GUIDANCE SET FORTH IN THE ORIGINAL ALSAFECOM REMAINS  
IN EFFECT. LATEST AVAILABLE INFORMATION REGARDING THIS ISSUE IS  
INCLUDED IN PARAGRAPHS SEVEN AND EIGHT. THE ORIGINAL MESSAGE IN ITS  
ENTIRETY FOLLOWS (PARAGRAPHS 2-6):

2. MAJOR HAZARDS ASSOCIATED WITH THE OPERATIONAL USE OF LIQUID AND  
GASEOUS OXYGEN ARE FIRE AND EXPLOSION. IN AN OXYGEN-RICH  
ENVIRONMENT, THE BATTLE DRESS UNIFORM (BDU), SYNTHETIC FABRICS AND  
THE CHEMICAL WARFARE DEFENSE ENSEMBLE (CWDE) MAY BECOME SATURATED  
WITH OXYGEN, IGNITE READILY, AND BURN VIOLENTLY. TO DATE, THERE  
IS NEITHER AN INDUSTRY STANDARD ON THE WEAR OF BODY PROTECTION WHEN

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NO

CONDUCTING LOX OPERATIONS NOR A TEST THAT CAN BE APPLIED TO ALL MATERIALS TO PRODUCE IGNITION TEMPERATURE VALUES. LEAKING OR SPILLED LIQUID OXYGEN CAN FORM POTENTIALLY DANGEROUS, HIGH CONCENTRATIONS OF OXYGEN GAS.

3. THE NATIONAL AERONAUTICAL AND SPACE ADMINISTRATION (NASA) AND THE AIR FORCE (AF) IN A JOINT PARTNERING EFFORT, MET FROM 16-18 MARCH 1999, AND CONCLUDED: "TO MINIMIZE THE UNKNOWN IGNITION POTENTIAL OF ELECTRO-STATIC DISCHARGE (ESD), 100 PERCENT COTTON, CUFFLESS, LONG-SLEEVED COVERALLS WILL BE WORN AS THE OUTER GARMENT WHEN FLOWING LOX. WHEN AN INDIVIDUAL MAY BE SPLASHED WITH LIQUID, A RUBBER APRON WILL ALSO BE WORN." THIS CHANGE WILL REMAIN IN EFFECT UNTIL THE ESD POTENTIAL OF CLOTHING IS TESTED AND CONFIRMED. THIS MESSAGE SUPERSEDES ALL AIR FORCE PUBLICATIONS FOR BODY PROTECTION DURING LOX SERVICING.

4. CALGON COMMERCIAL DIVISION, THE MANUFACTURER OF THE CHEMICAL WARFARE DEFENSE ENSEMBLE (CWDE), NSN: 8415011371704, STATES IN THEIR MATERIAL SAFETY DATA SHEET (MSDS), "FIRE AND EXPLOSION HAZARD DATA: CONTACT WITH STRONG OXIDIZERS SUCH AS OZONE, LIQUID OXYGEN, CHLORINE, PERMANGANATE, ETC, MAY RESULT IN FIRE. REACTIVITY DATA: MATERIALS TO AVOID: STRONG OXIDIZERS SUCH AS OZONE, LIQUID OXYGEN, CHLORINE,

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NO

PERMANGANATE, ETC." THE MSDS IS AVAILABLE ON THE WORLD WIDE WEB AT:  
[HTTP://WWW.HAZARD.COM/MSDS/H/Q202/Q150.HTML](http://WWW.HAZARD.COM/MSDS/H/Q202/Q150.HTML)

5. EFFECTIVE IMMEDIATELY, CHEMICAL PROTECTIVE SUITS WILL NOT BE WORN WHEN SERVICING LOX IN AN EXERCISE OR TRAINING ENVIRONMENT. THE CWDE WILL BE REMOVED PRIOR TO START OF LOX FLOW AND WILL NOT BE DONNED UNTIL LINES ARE DISCONNECTED. PPE IN PARAGRAPH THREE WILL BE WORN.

6. IN AN ACTUAL COMBAT ENVIRONMENT, THE ON-SCENE COMMANDER WILL CONDUCT A RISK ASSESSMENT TO DETERMINE WHEN THE CHEMICAL WARFARE DEFENSE ENSEMBLE WILL BE WORN.

7. SUBSEQUENTLY, SINCE MARCH 1999, THE AFSC HAS ALSO INCLUDED THE CHEMICAL WARFARE MASK C-2 FILTER CANISTER, WHICH FOR THIS ISSUE, WILL BE CONSIDERED AS PART OF THE CWDE. CALGON COMMERCIAL DIVISION, THE MANUFACTURER OF THE CHEMICAL WARFARE MASK C-2 FILTER, NSN:

4240011192315, STATES IN THEIR MATERIAL SAFETY DATA SHEET (MSDS), "FIRE AND EXPLOSION HAZARD DATA: CONTACT WITH STRONG OXIDIZERS MAY RESULT IN FIRE. REACTIVITY DATA: MATERIALS TO AVOID: STRONG OXIDIZERS SUCH AS OZONE, LIQUID OXYGEN, CHLORINE, PERMANGANATE, ETC." THE MSDS IS AVAILABLE ON THE WORLD WIDE WEB AT:

[HTTP://WWW.HAZARD.COM/MSDS/H/Q494/Q443.HTML](http://WWW.HAZARD.COM/MSDS/H/Q494/Q443.HTML)

8. AFSC WILL CONTINUE TO WORK WITH AF, DOD, AND OTHER AGENCIES IN AN

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EFFORT TO OBTAIN DEFINITIVE INFORMATION REGARDING POTENTIAL HAZARDS ASSOCIATED WITH OPERATIONAL USE OF LOX AND WEAR OF THE BDU AND CWDE. IN THE ABSENCE OF HARD DATA, UNLESS FUTURE TESTS OR EXPERT OPINION IS RENDERED, PRECAUTIONS ESTABLISHED IN ALSAFECOM 002/99 WILL REMAIN PERMANENTLY IN EFFECT. FUTURE AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) GUIDANCE WILL BE CHANGED TO REFLECT THIS POSITION AS THE MINIMUM AF STANDARD FOR LOX SERVICING OPERATIONS. POC FOR THIS SUBJECT IS SMS ENNIS, HQ AFSC/SEGS, DSN 246-0827.

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